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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,789	11/05/2003	Victor J. Dzau	18989-028	7439

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Ingrid A. Beattie, Ph.D., J.D.
Mintz, Levin, Cohn, Ferris,
Glovsky and Popeo, P.C.
One Financial Center
Boston, MA 02111

EXAMINER	
LI, QIAN JANICE	

ART UNIT	PAPER NUMBER
1633	

DATE MAILED: 04/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/701,789	DZAU ET AL.	
	Examiner	Art Unit	
	Q. Janice Li, M.D.	1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *1* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-90* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-90* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S. C. 121:

I. Claims 1-12 are drawn to a method for tissue regeneration using a composition comprising mesenchymal stem cells expressing an exogenous nucleic acid encoding an akt polypeptide. Classified in class 424, subclass 93.2.

II. Claims 13-20, 79, 80 are drawn to a composition comprising various stem cells expressing an exogenous nucleic acid encoding a therapeutic polypeptide. Classified in class 424, subclass 93.2.

III. Claims 21-30 are drawn to a method for regenerating myocardial tissue using a composition comprising mesenchymal stem cells expressing an exogenous nucleic acid encoding an anti-apoptotic polypeptide. Classified in class 424, subclass 93.2.

IV. Claims 31-50 are drawn to a composition and a method for regenerating myocardial tissue using the composition, which comprises mesenchymal stem cells expressing an exogenous nucleic acid encoding a cell protective polypeptide, wherein the nucleic acid further comprising a oxygen sensitive regulatory element and a cell targeting element. Classified in class 424, subclass 93.2.

V. Claims 51-67 are drawn to a method for increasing graft survival comprising administering mesenchymal stem cells expressing an exogenous nucleic acid encoding a polypeptide selected from the group consisting of those as recited in claim 51. Classified in class 424, subclass 93.2.

VI. Claims 68-74 are drawn to a method for treating a cardiac disorder comprising administering mesenchymal stem cells expressing an exogenous nucleic acid encoding a polypeptide selected from the group consisting of those as recited in claim 68. Classified in class 424, subclass 93.2.

VII. Claims 75-77 are drawn to an adenoviral vector encoding an extracellular superoxide dismutase. Classified in class 435, subclass 320.1.

VIII. Claim 78 is drawn to a method for reducing scar formation in infracted heart tissue. Classified in class 424, subclass 93.2.

IX. Claims 81-84 are drawn to a method of enhancing migration of a stem cell. Classification is to be determined depending on the means of enhancing.

X. Claims 85-90 are drawn to a method of enhancing engraftment of an injured tissue. Classified in class 424, and subclass 93.2.

2. The inventions are distinct, each from the other because of the following reasons.

Inventions III-VI, VIII-X and I are independent or distinct inventions. Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case, the different methods are directed for treating different disease or conditions, or treating similar conditions using different compositions. Each disease/condition has distinct etiology, mechanism of pathogenesis, requires different therapeutic strategies, and have distinct technical considerations.

Group II encompasses multiple inventions each drawn to a distinct type of stem cell such as bone marrow stem cell and mesenchymal stem cell. Further each stem cell expresses a distinct therapeutic polypeptide, wherein different polypeptides have distinct chemical structures and biological functions, different mode of operation, and require different search criteria and technical considerations. Upon election of group II, further identification of an invention drawn to a specific stem cell expressing a specific polypeptide is necessary.

Inventions II, IV, VII are independent or distinct inventions. Inventions are distinct if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case, the different inventions are directed to different compositions, namely various genetically modified stem cells, and adenoviral vectors. Different composition belong to distinct chemical entity, requires different search criteria, and distinct technical considerations.

Inventions I, III, V-VI, VIII-X, and II could be related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the process for using the product as claimed can be practiced with another materially different product. For example, a myocardial disorder could be treated with the method of group III or IV. The product as claimed can be used for treating different conditions. For example, the MSC encoding akt polypeptide could be used for tissue regeneration or for promoting graft survival.

The differences of the Inventions I-X are further underscored by their divergent classification and independent search criteria.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter and different search criteria, it would impose an undue burden to the Office if all the groups are examined together, thus, restriction for examination purposes as indicated is proper.

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and a product claim is subsequently found allowable, withdrawn process claims that depend from or otherwise include all the limitations of the allowable product claim will be rejoined in accordance with the provisions of MPEP § 821.04. **Process claims that depend from or otherwise include all the limitations of the patentable product** will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112. Until an elected product claim is found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowed product claim will not be rejoined.

See "Guidance on Treatment of Product and Process Claims in light of *In re Ochiai, In re Brouwer* and 35 U.S.C. § 103(b)," 1184 O.G. 86 (March 26, 1996). Additionally, in order to retain the right to rejoinder in accordance with the above policy, Applicant is advised that the process claims should be amended during prosecution either to maintain dependency on the product claims or to otherwise include the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

3. This application contains claims directed to the following patentably distinct species of the claimed invention. Upon election of an invention for examination in this application, further election of a species is necessary.

Group I encompasses different types of tissue regeneration and a therapeutic molecule in addition to the akt gene product. Upon election of group I, further election of a species is necessary. The species is defined as a combination of the following factors:

a. A specific tissue type for regeneration;

b. A specific therapeutic molecule selected from the group consisting of a specific homing molecule such as those recited in claim 7, a specific hormone such as an estrogen, and a specific angiogenic factor such as VEGF, etc. (see claims 6-12).

Group III is directed to methods of using mesenchymal stem cells expressing different anti-apoptotic gene, upon election of group III, further election of a species drawn to a specific anti-apoptotic gene is necessary.

Group IV is directed to methods of using mesenchymal stem cells expressing different cell protective gene, upon election of group IV, further election of a species drawn to a specific anti-apoptotic gene is necessary.

Group V is directed to methods of using mesenchymal stem cells expressing different therapeutic polypeptide as recited in claim 51, upon election of group V, further election of a species drawn to a specific anti-apoptotic gene and a specific type of engraft cells is necessary.

Group VI is directed to methods of using mesenchymal stem cells expressing different therapeutic gene, upon election of group VI, further election of a species drawn to a specific gene is necessary.

Group VIII is directed to methods of using mesenchymal stem cells expressing different anti-apoptotic gene, upon election of group VIII, further election of a species drawn to a specific anti-apoptotic gene is necessary.

Group IX encompasses methods of enhancing migration of a stem cell by increasing the amount of a stem cell surface molecule. Upon election of group IX, further election of a species is necessary. The species is defined as a combination of the following factors:

a. A specific surface molecule to be increased selected from the group as recited in claim 81;

b. A specific therapeutic molecule that is capable of increasing the surface molecule.

Group X embraces methods of using different injury-associated polypeptide for enhancing engraftment. Upon election of group X, further election of a species drawn to a specific injury associated polypeptide as recited in claim 85 is necessary.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

Each of the listed species is structurally and functionally distinct, and not overlapped in a structured search. Thus, a search and examination of anything more than one of such together for patentability would be unduly burdensome to the examiner.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

4. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143), and a listing of all claims readable thereon, including any claims subsequently added.

Applicant is advised that where a single claim encompasses more than one invention as defined above, upon election of an invention for examination, said claim will only be examined to the extent that it reads upon the elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the

application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Q. Janice Li** whose telephone number is 571-272-0730. The examiner can normally be reached on 9:30 am - 7 p.m., Monday through Friday, except every other Wednesday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Dave T. Nguyen** can be reached on 571-272-0731. The **fax** numbers for the organization where this application or proceeding is assigned are **571-273-8300**.

Any inquiry of formal matters can be directed to the patent analyst, **William Phillips**, whose telephone number is (571) 272-0548.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is **(866) 217-9197**. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the

problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at **800-786-9199**.

Q. JANICE LI, M.D.
PRIMARY EXAMINER

Q. Janice Li, M.D.
Primary Examiner
Art Unit 1633

QJL
April 17, 2006